

FURTHER NOTES ON THE GENUS *TISIPHONE*, *HÜBNER*.

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SINCE my monograph in Part I. of this Journal, I have spent a considerable amount of time in collecting the subspecies of *Tisiphone abeona*, and, assisted by various friends, have accumulated over five hundred specimens from southern Queensland, New South Wales, and Victoria. A detailed study of them must remain over for the present, but the following preliminary results may be of interest, as showing more definitely the limits of some of the subspecies, and also where further information is required. During the spring of 1914 Mr. H. W. Simmonds collected at Bermagui, Tathra and Eden; Mr. S. J. Turner at Kioloa. I worked the coastline from Ulladulla to Coff's Harbour; and Mr. W. Heron continued the investigation northwards to the Clarence River Heads. Many other friends supplied me with specimens, but they have no material bearing on these notes; they will be acknowledged when the full investigation of the genus is undertaken.

Briefly, the specimens show that the subspecies *albifascia* is found in Victoria, and extends along the coast to Bermagui in New South Wales; at Kioloa the white discal band of the hind wing beneath is sufficiently reduced in size for the race to be typical *abeona*, which extends as far north as Newcastle. The Hunter River forms the barrier between *abeona* and the new race *aurelia* described below, which ranges as far north as Camden Haven; then with a maximum range of fifteen miles south of Port Macquarie to twenty miles north of that town, we have the race *joanna*; north of this to Southport, in southern Queensland, the race *morrisi* occurs. No specimens have yet been recorded between Southport and about twenty-five miles north of Brisbane, from where the race *rawnsleyi* is known.

TISIPHONE ABEONA ABEONA Donovan.

Mr. Turner has sent me many specimens from Kioloa, and I caught a good series at Ulladulla, a few miles further north. These are all of the race *abeona*, so the division between *albifascia* and the typical *abeona* occurs between Bermagui and Kioloa. On the north, a series caught by myself near Lake Macquarie were also *abeona*.

Two interesting aberrations of this race are worthy of record. The first was caught by Mr. Simmonds at Stanwell Park, 1000 feet, 22nd November, 1914. It is a male, and has no orange postcellular bar on the forewing above or beneath, and the central orange band is much broader than usual. On the hindwing beneath the white discal band is absent, and the subterminal bands are much broader, but not so well defined as normally. The other specimen is a female from Woodford on the Blue Mountains, 2000 feet, 31st October, 1914. In this specimen the subterminal ocellus of the forewing is over twice the usual size.

TISIPHONE ABEONA AURELIA subsp. nov.

Male. Above. Forewing rich dark brown: a broad central area from subcostal at half to tornus, deep orange: a postcellular bar, deep orange: a subapical ocellus and a large subterminal ocellus between vein 2 and vein 3, black centered blue and with whitish pupil. Hindwing rich dark brown: an obscure subapical and a large subterminal ringed ocellus, black margined orange red.

Beneath. Forewing dark brown: markings as above but paler, especially postcellular bar: ocelli as above. Hindwing dark brown: a discal band and a double subterminal line, white: ocelli as above.

Female. Above and beneath as in male: bands broader and paler.

Lox.—Port Stephens (*types*). March, October, November, December. Tuncurry, April, May. Cooperbrook, September, October. Camden Haven, September, October.

This race can be recognised from *abeona* by the deep orange of the bands, the different colour of the margins of the ocelli of the hindwing, and the more prominent markings beneath. Specimens from Port Stephens and Tuncurry show very little variation, and nearly all from Cooperbrook agree with them, though some few show a trace of an orange discal band on the hindwing above. Most of the specimens from Camden Haven agree with those from further south; a very few show a distinct orange band on the hindwing above, and others have the central orange band reduced in size, especially in the cell: of twenty-five specimens, only two, a male and a female, have paler bands.

I have previously included the few specimens I had in my collection under *joanna*, as they were close to some of that subspecies from Port Macquarie. My long series now shows that the race can be limited as above.

TISIPHONE ABEONA JOANNA *Butler*.

The range of this race, of which no two specimens are exactly alike, is limited to a coastal strip extending a few miles north and south of Port Macquarie. As shown above, the orange banded *aurelia* predominates at Camden Haven, while specimens from Crescent Head, though not quite typical, agree with the race *morrisi*. As no barrier exists between the ranges of these races, it is impossible to draw a definite line separating them, but the limits I have set best suit the facts as at present known.

TISIPHONE ABEONA MORRISI *Waterhouse*.

Specimens from localities between Coff's Harbour and the Clarence River Heads agree with my Richmond River types. South from Coff's Harbour at Bellinger River Heads, Macleay River Heads and Crescent Head, occasional specimens are found with characters tending towards those of the southern race but not sufficiently so to place them outside the race *morrisi*. A specimen from the eastern slope of the Main Divide, caught on a creek running into the Manning River and in about the latitude of Port Macquarie, is of the race *morrisi*. This further strengthens my view that the variable race *joanna* will not be found at any altitude.

In considering the change from the southern broad orange banded *abeona* to the narrow cream banded *morrisi*, it will be noted that it is not gradual, but takes place rather suddenly with the variable race *joanna*. The change from the orange colour to the cream is completed in about fifty miles of coastline, but the influence of pattern is much greater, extending over about one hundred and twenty miles of coastline.
